

REMARKS

Favorable consideration and allowance of the claims of the present application are respectfully requested.

In the present Official Action, which has been made FINAL, the Examiner first rejected the title of the invention as not being clearly indicative of the invention to which the claims are directed. Applicant in response, has amended the Title of the Invention in the manner as suggested by the Examiner.

Further, Claim 1 has been objected to as reciting an informality that has been corrected by the inventor in an amendment to Claim 1 herein. That is, applicant has amended Claim 1 to clearly recited Source and drain regions as opposed to "electrodes". The Examiner is respectfully requested to remove the objection to Claim 1.

Further in the Final Rejection, the Examiner objected to the drawings under 37 C.F.R. 1.83(a) as not showing every feature of the invention specified in the Claims. Specifically, due to the limitations present in pending Claims 3 and 4, the Examiner indicates that these features are not shown in the drawings. Applicant respectfully responds by canceling the subject matter of Claim 3 and moreover, amending Claim 4 to recite that the substrate comprises a SiGe relaxed substrate. Respectfully, the cancellation of Claim 3 obviates the objection to the drawing Figures and, the amendment to Claim 4, finds clear support in the specification (e.g., Figure 3, element 110). The Examiner is respectfully requested to remove the objection to the drawings in view of these amendments.

Further in the Final Rejection, the Examiner rejected Claim 4 under 35 U.S.C. §112, first paragraph, as allegedly non-enabling, and rejected Claim 4 under 35 U.S.C. §112, second

paragraph, as allegedly being indefinite for allegedly failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicant respectfully traverses in view of the amendments provided to Claim 1 and 4 herein. That is, Claim 1 has been amended to clarify that the claimed "first layer" shown as element 120 in Figure 3 of the present specification, for example, is actually a first strained layer. Respectfully, no new matter has been entered by this amendment as it is clearly recited in the specification in paragraph [0022] that layer 120 comprises a strained Si capping layer.

Moreover, as Claim 4 has now been amended to recite limitations directed to the material of the substrate as being relaxed SiGe, the confusion indicated by the Examiner that the first layer comprises a relaxed SiGE substrate formed on top of the substrate has been obviated. As such, the Examiner is respectfully requested to withdraw the rejection of Claim 4 under 35 U.S.C. §112, first and second paragraphs.

Further in the Final Rejection, the Examiner rejected Claims 1 – 5 under 35 U.S.C. §102(b) as allegedly being anticipated by Takase et al (JP Patent No. 11-087706)(“Takase”) as allegedly showing and describing blocking impurity material to inhibit diffusion of implanted source and drain dopants from diffusing along dislocations or crystal defects. Further, the Examiner rejected Claims 1 – 6 under 35 U.S.C. §102(b) as allegedly being anticipated by Shahidi et al, reference entitled “A High Performance 0.15 um CMOS” VLSI Tech. Symp. Dig., 93, pp. 93-94 (“Shahidi”).

Applicants respectfully disagree. With respect to Takase, while Takase’s abstract describes use of impurity ions they only teach suppression of high activity dopant diffusions from source/drain regions during an annealing process (heat treatment).

Respectfully, Takase does not teach or suggest the use of blocking impurity ions implanted at specific locations, i.e., one or more dislocation or crystal defects located along an interface between said strained layer of semiconductor material and said substrate. That is, in the invention, blocking impurity ions are implanted at specific locations to partially or fully occupy specific locations including dislocation or crystal defects located along an interface between said strained layer of semiconductor material and said substrate. Takase does not teach or suggest any solution to remedy device degradations caused for presence of such dislocation or crystal defects and as a result can not be said to be anticipatory. Moreover, as claimed in amended Claim 1, Takase does not teach or describe a first strained layer formed over the substrate that provides an interface where one or more dislocation or crystal defects located. Takase rather teaches a prior ion implantation step to place impurity ions such as In in the semiconductor substrate 100, as a measure of providing threshold control (as stated in the Abstract of Takase), and not to remedy dislocation or other defects at the specific locations as now claimed in amended Claim 1.

Respectfully, Shahidi is of no help in this regard contrary to the Examiner's indication. That is, the Examiner indicates that Shahidi teaches a one or more dislocation or crystal defects as shown allegedly by a "dark line" in Figure 2. However, respectfully, Shahidi's description of Figure 2 is silent as to presence or not of dislocations. Shahidi does mention that In ions may be used in order to obtain a highly non-uniform channel implant to minimize short channel effects (SCE); however, Shahidi, like Takase, does not teach a first strained layer formed over the substrate that provides an interface where one or more dislocation or crystal defects are located.

Thus, it is seen that Takase and Shahidi while teaching that the presence of ions such as In or Sb can be used to tailor the device channel for an intended purpose (set threshold in Takase, reduce SCE's in Shahidi), there is no teaching or suggestion in either Takase or Shahidi that blocking impurity dopant materials are implanted to partially or fully occupy each said one or more dislocation or crystal defects present at an interface between a first strained layer of semiconductor material and said substrate in order to substantially inhibit diffusion of said implanted source and drain dopants from diffusing along said dislocation or crystal defect.

For these reasons, it is respectfully submitted that Takase whether taken alone or in combination with Shahidi is not suggestive nor of the present invention as claimed in amended Claim 1. Accordingly, the Examiner is respectfully requested to withdraw the rejection of Claims 1 and remaining dependent Claims 2 and 4-9 as being anticipated by Takase or Shahidi under 35 U.S.C. §102(b).

As the Examiner had cited Takase and Shahidi for the first time in the present Office Action, applicant submits that this amendment/response could not have been presented any earlier. Consequently, the Examiner is respectfully requested to enter and consider this amendment after final.

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Accordingly, it is respectfully requested that this application be allowed and a Notice of Allowance be issued. If the Examiner believes that a telephone conference with the Applicants' attorneys would be advantageous to the disposition of this

case, the Examiner is requested to telephone the undersigned, Applicants' attorney, at the following telephone number: (516) 742-4343.

Respectfully submitted,



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